REMARKS

Claims 1, 3, 5, 7, and 8 are pending in this application, with claims 1, 3, 5, 7, and 8 being independent. Claims 1, 3, 5, 7, and 8 have been amended. Claims 2, 4, and 6 have been cancelled. Care has been taken to avoid introduction of the new matter. For the reasons set forth below, Applicants respectfully submit that all pending claims as currently amended are patentable over the cited prior art.

Claim Rejections Under 35 U.S.C. §§ 102, 103

Claims 1, 3, and 6 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Number 6,229,582 ("Van Slooten"). Claims 2, 4, 5, 7, and 8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Van Slooten. Applicants respectfully traverse these rejections for at least the following reasons.

As amended, claim 1 recites a plasma display panel (PDP) adopting an AC surface discharge method including the steps of forming a front panel and forming a back panel. The front panel includes a scan electrode and a sustain electrode both formed on a plate and to which a voltage is applied in order to generate discharge; a dielectric layer covering the scan electrode and the sustain electrode; and a protective layer formed on the dielectric layer.

The back panel includes an electrode protective layer covering an address electrode formed on a plate; a barrier rib formed on the electrode protective layer; and a phosphor layer provided between the barrier rib. The front panel and the back panel are arranged to oppose each other, and circumference thereof is sealed together so as to form a discharge space therebetween. The protective layer on the dielectric layer is made of magnesium oxide (MgO) including silicon

(Si) of which atoms count in a range from $5x10^{18}$ pieces/cm^3 to $2x10^{21}$ pieces/cm^3 and nitrogen (N) of which atoms count in a range from $1x10^{18}$ pieces/cm^3 to $8x10^{21}$ pieces/cm^3.

To provide context, Applicants note that a conventional PDP adopting an AC surface discharge method has a protective layer made of MgO or MgO to which Si is added. The problem associated with this structure is that the ambient temperature of the PDP greatly changes the discharge-delay time, which results in changing the display quality. The objective of the present invention, in one aspect, is to solve the above-stated problem. To this end, the instant application provides a PDP adopting an AC surface discharge method with a protective layer made of MgO including Si and N, which can shorten a discharge-delay time, achieve a quick response of discharge to a voltage applied, and suppress changes of the discharge-delay time with respect to the temperature. *See e.g.*, Application at page 10, lines 14-19.

The objective of the cited reference Van Slooten, however, is different from the above-stated objective. The objective of Van Slooten is to provide a direct-current plasma-addressed liquid-crystal display device (dc PALC-display) and a direct-current plasma display panel (dc PDP) with a lower energy consumption than the dc PALC-display and the dc PDP of the prior art. *See e.g.*, Van Slooten at col. 1, line 11 to col. 2, line 14 and Abstract. To achieve this, Van Slooten, in FIG. 2, discloses the panel structure of a PALC-display device comprising a first (front) substrate (38) and a second (back) substrate (39). Van Slooten at col. 4, lines 36-61. The first substrate (38) includes column electrodes (29, 29', 29") covered with an electro-optical layer (35). *Id.* The second substrate (39) includes compartments (30, 30', 30") having walls which are provided with a secondary electron-emitting material, and discharge electrodes (31, 32) which are uncovered in the compartments (30, 30', 30"). *Id.*

The secondary electron-emitting material includes mixture of materials which are MgO, chromium trioxide (Cr_2O_3), silicon nitride (Si_3N_4), and yttrium trioxide (Y_2O_3). Van Slooten at col. 2, lines 51-59. The first substrate (38) and the second substrate (39) are arranged to oppose each other such that a dielectric layer (36), on which a secondary electron-emitting layer (21) is provided, is formed therebetween, and circumference thereof is sealed together. Van Slooten at col. 5, lines 11-14 and FIG. 2. To the discharge electrodes (31, 32) dc voltage is applied for ionizing gas (33) within compartments (30, 30', and 30").

As such, Van Slooten describes a PDP adopting a *DC* discharging method and not a PDP adopting an *AC* surface discharging method, as recited in claim 1 (emphasis added). In response, the Office Action concedes that Van Slooten does not describe a PDP adopting an AC surface discharging method, however, the Office Action asserts that because this feature appears in the preamble of claim 1, it does not give it patentable weight. *See e.g.*, Office Action at page 2, lines 22-25 (stating "while Van Slooten does not disclose an AC display method, it has been held that when the body of the claim fully sets forth all the limitations of the invention and the preamble merely states an intended use of the invention, the preamble is not considered a limitation"). Applicants disagree.

MPEP § 2111.02 states that "any terminology in the preamble that limits the structure of the claimed invention *must* be treated as a claim limitation." Referring to *In re Stencel*, 828 F.2d 751, 4 USPQ2d 1071 (Fed. Cir. 1987), Applicants note that the claim at issue was directed to a driver for setting a joint of a threaded collar; however, the body of the claim did not directly include the structure of the collar as part of the claimed article. The examiner did not consider the preamble, which did set forth the structure of the collar, as limiting the claim. The court

found that the collar structure could not be ignored. While the claim was not directly limited to the collar, the collar structure recited in the preamble did limit the structure of the driver.

In particular, the court held that "[t]he framework – the teachings of the prior art – against which patentability is measured is not all drivers broadly, but drivers suitable for use in combination with this collar, for the claims are so limited." *Id.* at 1073, 828 F.2d at 754. Here, claim 1 recites a PDP adopting an AC surface discharge method. The Office Action is correct that this feature does not appear in the body of the claim, but this does not mean it does not limit the claim. In fact, similar to *In re Stencel* in here the teaching of the prior art against which patentability is measured is not limited to all PDPs broadly, but to PDPs adopting an AC surface discharge method.

Nevertheless, Applicants submit because in Van Slooten the dc voltage is applied to the discharge electrodes (31, 32), the PALC does not include a dielectric layer, a protective layer, and a phosphor layer on the discharge electrodes (31, 32) in the compartments (30, 30', and 30"). Indeed, as noted above, the discharge electrodes (31, 32) remain *uncovered* in the compartments (30, 30', and 30''). In contrast, in claim 1, the address electrode is covered with the an electrode protective layer, and a barrier rib and phosphor layer are provided on the protective layer. To illustrate one non-limiting example, FIG. 1 of the instant application illustrates that the address electrode (12) is covered by the electrode protective layer (13), and a barrier rib (14) and a phosphor layer (15) are provided on the electrode protective layer (13).

To further distinguish Van Slooten, Applicants respectfully submit that the alleged column electrode (29) of Van Slooten does not correspond to "the scan electrode and the sustain electrode" recited in claim 1, as suggested by the Office Action. *See, e.g.*, Office Action at page 2, lines 18-20. In claim 1, a voltage is applied to the scan electrode and the sustain electrode in

order to *generate discharge*. On the other hand, in Van Slooten, although a voltage is applied to column electrode (29), this voltage ***does not generate discharge*** in the compartments (30, 30', 30"). As such, column electrode (29) does not correspond to the scan electrode and the sustain electrode recited in claim 1.

Furthermore, in Van Slooten, the protective layer is made of a secondary electron emitting material including mixtures of materials which are MgO, Cr_2O_3, Si_3N_4, and Y_2O_3. In contrast, in claim 1, the protective layer is made of MgO including Si of which atoms count in a range from $5x10^{18}$ pieces/cm^3 to $2x10^{21}$ pieces/cm^3 and nitrogen (N) of which atoms count in a range from $1x10^{18}$ pieces/cm^3 to $8x10^{21}$ pieces/cm^3. The distinction is an important one. In particular, as noted by the Applicants, the foregoing distribution of the number of atoms allows shortening the discharge-delay time as well as suppressing a change of the discharge-delay with respect to the temperature. Application at page 10, lines 14-19.

The Office Action concedes that Van Slooten does not disclose the concentration falling within the specific ranges recited in claim 1; however, the Office Action asserts that it would have been obvious to one or ordinary skill in the art to discover the optimum or workable ranges by routine experimentations. *See e.g.*, Office Action at page 4, lines 23-26. Applicants disagree and respectfully direct the Examiner to MPEP § 2144.05, section II, subsection B, entitled "Only Result-effective Variables Can Be Optimized," which sets forth the applicable standard

> A particular parameter ***must first be recognized*** [by the prior art (see excerpt from cited case)] as a result-effective variable, i.e., a variable which achieves a recognized result, ***before*** the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. (emphasis added) (citing *In re Antonie*, 195 USPQ 6 (CCPA 1977), which held that the "prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was ***not recognized in the art*** to be a result-effective variable)(emphasis added).

In the instant case, it is respectfully submitted that the prior art does NOT recognize the claimed distribution level as result-effective variables. In fact, it appears that Van Slooten is completely silent as to the importance of such a distribution of the number of atoms. Accordingly, in view of the ***express*** requirements cited above from the MPEP and the case law itself, it is respectfully submitted that the Office Action's conclusion of obviousness regarding the recited distribution level is incorrect.

For at least the foregoing reasons, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 1.

Claims 3, 5, 7, and 8 have been amended to include features similar to the above-recited features of claim 1. Therefore, for at least the reasons presented above with respect to claim 1, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 3, 5, 7, and 8.

Conclusion

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication for which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

10/520,905

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP

Babak Akhlaghi
Limited Recognition No. L0250

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 BA:MaM
Facsimile: 202.756.8087
Date: July 17, 2008

Please recognize our Customer No. 53080 as our correspondence address.